

Date: Sun, 22 May 94 04:30:24 PDT  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V94 #152  
To: Ham-Ant

Ham-Ant Digest                      Sun, 22 May 94                      Volume 94 : Issue 152

Today's Topics:

2m/broadcast-fm mobile antenna?  
After-market HT antennas  
Coaxial Dipole? I goofed somewhere.  
HamSticks.... (2 msgs)  
Homemade antenna for CB? (3 msgs)  
Modified Hustler ant.  
Online docs for NEC2 program?  
Review of Flytecraft SFX40  
Tube's needed for UT4UX  
Using 50ohm Coax instead of 75ohm  
Why are there no amateur helix antennas? (3 msgs)

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Fri, 20 May 1994 16:53:58 GMT  
From: olivea!spool.mu.edu!howland.reston.ans.net!europa.eng.gtefsd.com!  
library.ucla.edu!news.ucdavis.edu!dale.ucdavis.edu!ez045506@ames.arpa  
Subject: 2m/broadcast-fm mobile antenna?  
To: ham-ant@ucsd.edu

I talked to someone that had a 11m/broadcast-fm mobile antenna that said  
it worked great, and that he could even transmit the cb while listening  
on broadcast-fm without problems. I saw that Radio Shack was selling such  
an antenna and wondered if such an antenna could be designed for 2 meters.

What I'd like is the plans for making a 2m/broadcast-fm splitter.

I'm thinking that it would be best to incorporate a load for a 5/8 whip for 2 meters in the splitter out of the broadcast-fm path. Is this practical?

Or, most desirable, a three way 2m/10m/broadcast-fm splitter with loads for 5/8 wave at 2m and 1/4 wave at 10m.

Comments? Suggestions?

Timothy McNulty

N6HFS

tjmcnulty@ucdavis.edu

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Date: Fri, 20 May 94 15:11:00 -0500  
From: iat.holonet.net!wwwswinc!art.harris@uunet.uu.net  
Subject: After-market HT antennas  
To: ham-ant@ucsd.edu

I'm looking for recommendations for a good flexible 2-meter HT antenna to replace the 3.5 inch rubber duck that came with my Alinco DJ-F1T.

I have a RS telescoping type (without any loading coil) that works very well when adjusted to about 20 inches; however, the drawback is there's no "give" to it and I'm afraid I'm going to break the radio's BNC connector when I whack the ant on something.

Ideally, I'd like a single-band (2-meter) unit about 12 to 15 inches in length with good efficiency and flexibility.

Question: The Smiley "Super Stick II" claims to be a "5/8 wave, loaded telescoping antenna with 6-9 db gain fully extended (54"), usable fully collapsed (10"), or one section (1/4 wave)." The implication is the radio doesn't care that the feed point impedance is going to be varying wildly as the ant is telescoped from 10" to 54". Am I missing something here?

73  
Art N2AH

-----  
Date: 21 May 94 21:11:24 GMT  
From: agate!library.ucla.edu!csulb.edu!csus.edu!netcom.com!  
wa2ise@ucbvax.berkeley.edu  
Subject: Coaxial Dipole? I goofed somewhere.  
To: ham-ant@ucsd.edu

In article <Cq46rG.A8w@ncifcrf.gov> mack@ncifcrf.gov (Joe Mack) writes:  
>In article <Cq42Jn.5LB@fore.com> ed@fore.com (Ed Bathgate) writes:  
>>Hello again, Ed here.  
>>  
>>The swr was 3:1 min at the very top of the 2m band...  
>>  
>>  
>> |  
>> |  
>> | <1/4 wave vertical rod  
>> |  
>> |  
>> ||| <bnc barrel connector here, outside connected to "tube"  
>> |||< 1/4 wave aluminum tube about 1" od. (est 1/16 thick) 19 1/4" long  
>> |||  
>> |||  
>> |||  
>> |  
>> |< 50 ohm coax. rg 58 type. about 15'  
>> |  
>> |  
>>  
>>  
>>  
>>  
>>It was shown fed with 75 ohm cable in the vhf book, but I only had 50 ohm, I  
>>expected somewhat of a mismatch, but could not get it below 3:1 at best.  
>>  
>  
>You seem to have done it right. The antenna should be 75ohms and so you  
>will have SWR=1.5 off the top, the rest is a mystery to me.

I tried this some years ago, using braid for the 1/4 wave tube, and 22 guage  
wire for the top 1/4 element. And I also got an SWR of 3:1  
Used RG58, 50 ohm coax. I must have done the same mistake. :-(

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Date: 20 May 1994 23:20:17 GMT  
From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!gatech!  
newsxfer.itd.umich.edu!zip.eecs.umich.edu!yeshua.marcam.com!news.kei.com!  
ssd.intel.com!chnews@ihnp4.ucsd.edu  
Subject: HamSticks....  
To: ham-ant@ucsd.edu

John Mcleod (johnm@weitek.COM) wrote:  
: Does anyone know where these are available now ? John Mcleod N6RCD.

Hi John, original Ham Sticks from Lakeview, (800)226-6990 for orders.  
(803)226-6990 for info. ASA has similar products, (803)293-7888.

73, KG7BK, CecilMoore@delphi.com

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Date: 22 May 1994 04:12:41 GMT  
From: ihnp4.ucsd.edu!swrinde!emory!sol.ctr.columbia.edu!news.kei.com!  
ssd.intel.com!chnews!cmoore@network.ucsd.edu  
Subject: HamSticks....  
To: ham-ant@ucsd.edu

John Mcleod (johnm@weitek.COM) wrote:  
: Does anyone know where these are available now ? John Mcleod N6RCD.

Hi John, see the latest (June '94) 73 magazine page 28. They list Lakeview,  
Valor, Wintenna, ASA, and Anttron. Too bad they left out the better  
antennas like the Texas Bugcatcher, etc.

73, KG7BK, CecilMoore@delphi.com

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Date: Fri, 20 May 1994 13:08:49 GMT  
From: yale.edu!noc.near.net!usenet.elf.com!rpi!psinnpt!arrl.org!zlau@yale.arpa  
Subject: Homemade antenna for CB?  
To: ham-ant@ucsd.edu

MORROW J (K2KA@UNB.CA) wrote:

: I have some questions about antenna designs for CB radios. First,  
: as you probably know, CB's range from 26.965-27.405 Mhz. The  
: wavelength is approximately 11m ( $\lambda = c/f$ ). How does one calculate  
: the ideal wire length for an antenna? Use the above method?

The ideal length depends on what you want the radiation pattern  
to look like--how your power is distributed. Assuming you want  
maximum ground wave coverage--maximum coverage at very low angles  
of radiation--I've discovered an interesting effect not covered  
in the textbooks. It appears that a 68 meter high/long antenna  
does a lot better than one just a few meters high for 11 meters.  
The short antennas tend to send power skyward, not at low angles.

Keep in mind that I don't have any experimental confirmation of  
the computer modeling. However, it seems obvious to me that  
Brewster angle problems (which prevent low angle radiation) are  
reduced with very high antennas. Computer programs are useful

for telling you what a given structure or array of wires is likely to do. What to tell the computer is more of an art than a science; knowing the prior art can be as much of a hinderance as a help. (for a lot of people, anyway, who tend to copy what works)

--

Zack Lau KH6CP/1                    2 way QRP WAS  
                                     8 States on 10 GHz  
Internet: zlau@arrl.org    10 grids on 2304 MHz

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Date: Fri, 20 May 1994 12:41:22 GMT  
From: yale.edu!noc.near.net!usenet.elf.com!rpi!psinnntp!arrl.org!mtracy@yale.arpa  
Subject: Homemade antenna for CB?  
To: ham-ant@ucsd.edu

MORROW J (K2KA@UNB.CA) wrote:

: I have some questions about antenna designs for CB radios. First,  
: as you probably know, CB's range from 26.965-27.405 Mhz. The  
: wavelength is approximately 11m ( $\lambda=c/f$ ). How does one calculate  
: the ideal wire length for an antenna? Use the above method?

The length for a 1/2 wave antenna is 468 divided by the frequency in MHz. In this case, you'd want to use a frequency of 27.185 MHz, the center of your range. The resulting length is 17 feet, 2-1/2 inches.

: Secondly, once the wire length has been found, does one simply connect  
: the center conductor of the 50 ohm coax to the wire, connect the coax  
: to the radio (SO-239)? Will this setup work?

You did not say whether you intended this for home or mobile use, but I assume you mean home use. In this case, you want to split the wire in half and connect each half to one side of the coax (this type of antenna is called a dipole, because it has two "poles" to it).

: How do you determine the power rating of the antenna? The wire size?

Yes, but at CB power levels, this is something you don't have to worry about.

: How does one determine the gain of the antenna?

The gain of this antenna is 3 dBi (isotropic), or 0 dBd (dipole)

: How do you tune the antenna?

By trimming it to size for minimum SWR. Because this is a cut/check/cut/etc. procedure, start with a wire longer than mentioned above, say about 17 feet, 6 inches. Cut a 1/4 inch piece off each end for each trimming until you get a match.

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Date: 22 May 94 02:14:04 GMT  
From: agate!howland.reston.ans.net!darwin.sura.net!convex!news.duke.edu!news-feed-1.peachnet.edu!emory!europa.eng.gtefsd.com!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!alberta!atha!aupair.cs.@network  
Subject: Homemade antenna for CB?  
To: ham-ant@ucsd.edu

mtracy@arrl.org (Mike Tracy (KC1SX)) writes:  
>MORROW J (K2KA@UNB.CA) wrote:  
>: How do you tune the antenna?  
>By trimming it to size for minimum SWR.

How, pray tell, is he going to get a good match of a 73 ohm dipole to a random length 50 ohm feedline by trimming the dipole? You might as well tell him to trim the feedline 1/2 :). He needs a noise bridge, not a SWR meter.

Alternatively, if he droops the dipole to about 110 degrees it will be pretty close to 50+j0 ohms at the design length.

regards,  
Ross ve6pdq

--

Ross Alexander VE6PDQ    rwa@cs.athabascau.ca,  
(403) 675 6311            rwa@auwow.cs.athabascau.ca

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Date: Sat, 21 May 1994 11:32:42 GMT  
From: ihnp4.ucsd.edu!usc!cs.utexas.edu!utnut!nott!cunews!freenet.carleton.ca!FreeNet.Carleton.CA!ai058@network.ucsd.edu  
Subject: Modified Hustler ant.  
To: ham-ant@ucsd.edu

Hi all,

I have been using a Hustler 15 metre resonator with an extra long (45")

whip for 20 metre mobile with good results. I would like to try the same mod for other bands, specifically 40m using the 30 metre resonator. Has anyone tried this and what length whip do you need? Would appreciate responses by e-mail since I don't get on this thing often.

Thanks, and 73

--

Rick Bushnell VE3QV Ottawa, Ontario, Canada  
ai058@freenet.carleton.ca

-----  
Date: 21 May 94 17:39:35 GMT  
From: agate!library.ucla.edu!psgrain!charnel.ecst.csuchico.edu!olivea!news.bu.edu!  
att-in!cbnewsm!jeffj@ucbvax.berkeley.edu  
Subject: Online docs for NEC2 program?  
To: ham-ant@ucsd.edu

In article <By9u1ja.brooksnb@delphi.com> brooksnb@delphi.com writes:  
>Trip Martin <night@hermes.acm.rpi.edu> writes:  
>  
>>Are there any online docs for the NEC2 antenna program?  
>  
>I cannot offer you the documentation, but I will help you look. Do you  
>have the code that I could FTP or download? Thanks Brad Brooks wb7ejs

There is a help file I created for Mininec and also the NEC programs  
for various computers you can ftp from the following site;

netcom12.netcom.com , look in the randal/NEC directory for it.

Not sure how closely Mininec is to the NEC programs but it is based on  
it and should be similar.

Jeff  
73!

--

Jeff Jones AB6MB | Vote out those who voted for the North American  
j.jones91@genie.geis.com | Free Trade Agreement!  
Infolinc BBS 510-778-5929 |

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Date: Sun, 22 May 1994 00:08:54 GMT  
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!news.acns.nwu.edu!raven.alaska.edu!

orion.alaska.edu!auchd@network.ucsd.edu  
Subject: Review of Flytecraft SFX40  
To: ham-ant@ucsd.edu

I just recently purchased a Flytecraft antenna so I thought this might be an appropriate forum to tell you how it works.

The Flytecraft SFX40 is a 40 meter antenna. It consists of two pieces of 1 1/4 inch PVC pipe with 2 helically wound pieces of antenna wire inside. The two sections are connected together, one on top of each other. The electrical connection between the helices are maintained by a jumper. On the top of the pieces of PVC is a telescoping whip, total length 24". On the base of the antenna is a conduit joint box consisting of four holes where 4 2' pieces of 1/2" EMT conduit are connected. This provides a base for the antenna and is not part of the antenna. The antenna is connected at the base by standard coaxial cable. Also at the base, are two radials, that are approximately shortened by 1/2 length. They are helically wound in the center. The total length of the antenna is 9 1/2'.

How does the antenna work? I found that the antenna worked surprisingly well. The antenna is, on average, about 1-2 S units less than my sloping Delta quad. What makes this more impressive is that my QUAD is cut for 40 meters and its high point is almost 35 feet. The Flytecraft, however, is only 9 feet tall and sits on the ground. The bandwidth is narrow although good. The SWR is fairly flat across the 40 meter Novice band at about 1.2:1. The only real problem I encountered with the antenna is that it is very sensitive to other antennas and trees. I had to reposition the antenna away from trees in my backyard to reduce the SWR.

James Wiedle  
WL7NO

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Date: 21 May 94 00:02:00 GMT  
From: agate!howland.reston.ans.net!news.intercon.com!udel!news.sprintlink.net!  
connected.com!beauty!rwing!eskimo!aandh@ucbvax.berkeley.edu  
Subject: Tube's needed for UT4UX  
To: ham-ant@ucsd.edu

ut4ux

Hi He can find tube's for his amp in Moscow very low cost there is a russian tube that will work with just a small change to his amp I see them at most of the clubs in Moscow or Kazan He may not know about the tube but if he get ahold of some one from the zilan dx club they may be able to help him

73 Jim UA4PDG/K7udg



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Date: 21 May 1994 08:10:47 -0600  
From: mnemosyne.cs.du.edu!nyx10.cs.du.edu!not-for-mail@uunet.uu.net  
Subject: Using 50ohm Coax instead of 75ohm  
To: ham-ant@ucsd.edu

Suggestion: Hook it up (no transformers) & try it. Just might work fine.  
If it doesn't, find one of those 2 part antenna pre-amps (power supply feeds & decouples power on the coax) with the pre-amp at the antenna.

Try it WITHOUT the preamp first, as where you are I'll bet there's a LOT of hash & strong stations in the region & you might overload either the preamp or your receiver easily.

/s/ Bill

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Date: Fri, 20 May 1994 19:50:06 GMT  
From: ihnp4.ucsd.edu!agate!library.ucla.edu!csulb.edu!nic-nac.CSU.net!usc!elroy.jpl.nasa.gov!lll-winken.llnl.gov!noc.near.net!usenet.elf.com!rpi!psinntp!arrrl.org!zlau@network.ucsd.edu  
Subject: Why are there no amateur helix antennas?  
To: ham-ant@ucsd.edu

Gregory W. Ratcliff NZ8R (gratclif@magnus.acs.ohio-state.edu) wrote:  
: I've been tinkering around here building some loop yagis,  
: some logs, and now just starting on a helix. After researching  
: this a bit, I can't for the life of me figure out why this isn't the  
: most popular vhf/uhf antenna for amateurs.

: Are there patent restrictions still?

If there were any, they would have expired many years ago.

: The real question seems to be coming up with a good mechanical arrangement  
: to hold the antenna. A boom with spreaders seems like too much work. How  
: about large diameter coil supported only on the top. Something like 1/4"  
: aluminum wire would be nice.

Actually, this is pretty easy at 2.3 and 3.5 GHz. You can use a mast mounted transverter as a counterweight. By using an N male panel mount connector, you can attach the antenna directly to the transverter, minimizing losses. I have something similar for 2.4 GHz receive, except that I use an N barrel/N female connectors. To support the helix, I just run a piece of metal down the center and use a couple of teflon insulators.

These bands are nice because 20 dBic antennas are small enough to just stick in a box and ship to anywhere in the country. You don't have to figure out relatively fool-proof assembly instructions.

Of course, amateurs are just starting to make widespread use of these bands--10 years ago you would have had a tough time selling amateurs little 3.5 GHz antennas--there weren't many radios to hook them to.

--  
Zack Lau KH6CP/1                      2 way QRP WAS  
   8 States on 10 GHz  
Internet: zlau@arrl.org    10 grids on 2304 MHz

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Date: Fri, 20 May 1994 21:06:43 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!math.ohio-state.edu!  
magnus.acs.ohio-state.edu!slip1-36.acs.ohio-state.edu!gratclif@network.ucsd.edu  
Subject: Why are there no amateur helix antennas?  
To: ham-ant@ucsd.edu

In article <1994May20.153819.17088@gov.nt.ca> ve8ev@gov.nt.ca (John Boudreau) writes:

>Newsgroups: rec.radio.amateur.antenna  
>Path: magnus.acs.ohio-state.edu!math.ohio-state.edu!howland.reston.ans.net!  
europa.eng.gtefsd.com!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!unixg.ubc.ca!  
quartz.ucs.ualberta.ca!gov.nt.ca!ve8ev  
>From: ve8ev@gov.nt.ca (John Boudreau)  
>Subject: Re: Why are there no amateur helix antennas?  
>Message-ID: <1994May20.153819.17088@gov.nt.ca>  
>Organization: Government of the NWT, Canada  
>References: <gratclif.52.2DDC49F8@magnus.acs.ohio-state.edu>  
>Date: Fri, 20 May 1994 15:38:19 GMT  
>Lines: 41

Well...we had a few interesting postings. There seems to be some confusion on the polarization issue:

CP=circular polarization

LP=linear polarization (mostly Vertical or Horizontal with respect to the Earth)

LP can be obtained by just changing direction in the middle of the boom and then starting around the other direction. I don't like this since it is

fixed.

A better way to obtain LP is to use 2 radiators in opposite directions. They can be either on the same boom or separate. Kraus indicates that there are few interactions either between contrawound or coaxially wound helicals. (I think we settled THAT too!). It is not clear to me what the LP gain would be if two radiators are fed in phase to obtain LP. We know the CP gain would be something close to +3db.

Another point that I think is important is that the axial ratio is greatly improved by tapering the last couple of turns. (axial ratio is a how circular the radiation is.) How is this handled mechanically?

I have also been trying to figure out if RHCP is radiated from an antenna whose turns were wrapped around a big standard screw. The theoretical discussions seem to say otherwise.

I think a single antenna should be fine for 440-900- and maybe 1.2 Gig, or a larger tapered maybe good for 2 meters to 2.4Gig. There are a few indications that good gain over a 5:1 frequency can be obtained with tapered construction. Anyone have access to anything on this?

Reflectors:

A screen seems good. To keep the amount of metal in the sky, what about a screen that varies its "mesh size" as it extends away from the helix? So that electrically its a 1 wavelength reflector.

Thanks,

Greg....going to the plumbing store.... <grin>

Gregory W. Ratcliff

Columbus, Ohio ICBM

In the Air N1697X

On the Air NZ8R

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Date: 20 May 1994 23:06:25 GMT

From: ihnp4.ucsd.edu!mvb.saic.com!unogate!news.service.uci.edu!usc!

howland.reston.ans.net!gatech!udel!news2.sprintlink.net!news.sprintlink.net!

bga.com!patm@network.ucsd.edu

Subject: Why are there no amateur helix antennas?

To: ham-ant@ucsd.edu

Gregory W. Ratcliff (gratclif@magnus.acs.ohio-state.edu) wrote:

: I've been tinkering around here building some loop yagis,  
: some logs, and now just starting on a helix. After researching  
: this a bit, I can't for the life of me figure out why this isn't the

: most popular vhf/uhf antenna for amateurs.

: Gain seems 300% of yagi per man hour to build.

: Gain seems much more "friendly" to errors.

: Bandwidth is much greater.

: Matching seems like a no brainer.

: The real question seems to be coming up with a good mechanical arrangement

---I agree! ---

I have been constructing helical antennas for 900 MHz and 1.2 GHz for a couple of years and have also been amazed at their obscurity, given the above advantages.

All of my use has been for amateur TV work on these bands and they work extremely well. I do a lot of Public Service ATV which frequently involves relatively short distances in urban areas and the circular polarization just about eliminates the problem of multi-path (ghosting). This, to me, is the neatest characteristic of CP - the cancellation of reflections with the opposite screw sense. If a CP'd signal with clockwise rotation is reflected off a building, body of water, etc, the reflected signal has CCW rotation and will be largely rejected by the receive antenna.

I have also used 2 pairs of helicals, each pair with opposite rotation, to transmit TV on 2 frequencies in the 902-928 band simultaneously. Believe me, this was not possible using perpendicular linear polarization (H and V).

As far as construction, the best material I have found for the element is 1/4" copper tubing for \*refrigeration\*. It is lighter than the regular stuff and cheaper as well (50 ft for < \$10). To attach the helix to a 1" PVC boom, I started out using Ty-wraps through holes drilled in the PVC but now use 1/8" dia copper pop-rivets through the tubing and wall of the PVC.

So.... I would sure like to see more ideas on constructing and using H's. Functionality aside, they are a lot of fun, I always get interesting reactions from other hams and lay people when I set them up at a portable location.

Patrick McGuire WA8PLR

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End of Ham-Ant Digest V94 #152

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